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Wade Guidry

*Coastal Resource Sharing Network*

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# PACs Against the Wall?

## Wade Guidry

Systems Manager,  
Coastal Resource Sharing Network  
<http://crsn.beachbooks.org>  
[wade@beachbooks.org](mailto:wade@beachbooks.org)

Library patrons rely on Public Access Computers (PACs) for popular services like Web browsing, word processing, and e-mail. But PACs require regular maintenance. And many PACs in use including Gates foundation computers are nearing their end-of-life. How best can libraries in rural communities replace, improve, and expand PAC resources for patrons?

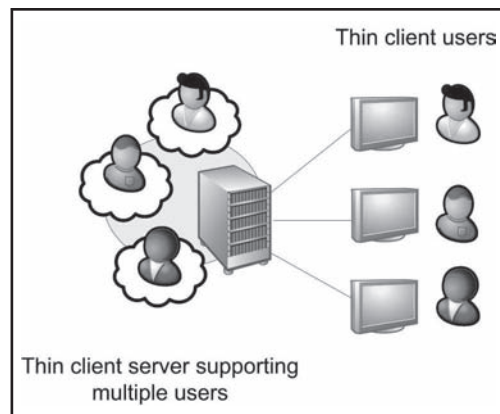
Here at Coastal Resource Sharing Network (CRSN) we have begun implementing thin client technology. Of the 120 PACs in our consortium, 47 are now thin clients, serving patrons in five libraries. The switch to thin clients has helped reduce the maintenance workload associated with PACs, and has provided patrons with a consistent, always up-to-date user experience. The graphic shows a typical thin client at CRSN.

### What is it?

Simply put, thin client technology consists of two components: a central server, and a thin client workstation. A central server runs the patron applications, such as Web browsers, word processing, and spreadsheet software, and implements security policies. On the patron side, a small appliance called a thin client provides a screen, keyboard, and mouse, as well as connectivity to the server. A patron uses a thin client just as she would a traditional PAC, the difference being that the computing work actually occurs on the server, rather than the workstation. A single server can support many simultaneous users.

### Easing the maintenance workload

PACs require a lot of regular maintenance and attention. Operating systems need to be updated. Application patches need to be applied. New software needs to be installed.



Not to mention, security programs for detecting spyware and viruses need to be maintained. Beyond all that, PACs need to be “locked down” to prevent accidental or malicious system changes. And that’s just the software. PAC hardware also breaks down occasionally, and needs to be serviced.

In a thin client environment, the guts of the system reside on the server, allowing central and remote management of the entire PAC environment. For example, without leaving my desk in Tillamook, I can manage a PAC environment that extends over 100 miles and five libraries. Previously, staff spent hours manually updating 47 different PACs every time a change was needed. Now, I can make the needed changes centrally, in just a few minutes.

Thin client workstations are simple network appliances with no moving parts, which can be easily replaced, removed, or added to as needs change. If a remote library has a problem with a thin client which I can’t fix remotely, I can have them courier the failing unit to me. In return, I send them a pre-configured replacement unit, all ready to be plugged in for immediate patron use.

### Consistent, up-to-date user experience

Over time, traditional PACs “drift away”



from each other in terms of applications, versions, and desktop icons. In contrast, thin clients provide a uniform, consistent, desktop experience for users. Thanks to centralized management, patrons see and experience the same desktop and set of applications, regardless of which workstation they use. You can also build configurations specific to a library or a workstation type. At CRSN, I have two main profiles configured for thin clients: a full PAC with Web browsing, MS Office, and so on, and a catalog-only PAC with Web access limited to our online catalog. I can reconfigure remote thin clients from one profile to another, without leaving my desk. Thin clients also give patrons more immediate access to new or updated applications. If we decide to make a new application publicly available, I can publish the software for patron use at any thin client in a matter of minutes.

### Product landscape

Thin client technology exists for both the Windows and Linux platforms. Microsoft includes Terminal Services and Group Policy as part of Windows Server 2003, which together provide a solid thin client solution. Citrix offers the Citrix Presentation Server for Windows Server 2003. The open source Linux Terminal Server Project (LTSP) delivers a thin client solution popular in school environments. Canadian-based Useful offers the DiscoverStation, another thin client variation that runs on Linux. Vendors of thin client workstation hardware include Wyse and Neoware, among others.

Because of my pre-existing knowledge of Microsoft server technology and price breaks available through TechSoup, I implemented a Microsoft-based solution at CRSN, coupled with Neoware and Wyse thin clients. I highly recommend a white paper from Microsoft called *Implementing Common Desktop Management Scenarios*

*with the Group Policy Management Console*, listed under Resources. I used this white paper, and its accompanying files, as the basis for my implementation.

### At what price?

At CRSN, our servers including the software have averaged about \$3,000, and thin clients about \$350. So, a typical one server, 20 thin client install would cost \$9,000, or about \$500 per patron workstation, very cost-competitive with traditional PACs. Thin clients also offer potential savings on your power bill, because of their reduced power consumption. I haven't yet tried to measure these savings, but Neoware has published some data on their units (see Neoware <http://www.neoware.com> under References).

### Look before you leap

As with any new technology, "look before you leap." First, visit a library already using thin clients, just to get a feel for it. Public schools also frequently use thin clients. Next, build a simple test environment. I started by using an old Gates Foundation server, and reconfigured it with Microsoft Terminal Services and Group Policy. For thin clients, I simply retrofitted a few old PCs, using an open source project called PXES. PXES allows you to create bootable CDs that can be used to boot up a standard PC as a thin client. After that, you can demo your project with staff, and even put your prototype out for public use.

### Staffing

Implementing thin client technology may require skills that your existing staff does not already possess. This fact should not deter you, though, from pursuing the technology. For independent learners, the references section provides a good place to start the learning process. If you are in-



terested in implementing thin clients in a Microsoft environment and wish to pursue formal training, look for courses about Active Directory and Group Policy. As an alternative to growing talent from within, consider partnering with a public school system or community college that already has the necessary staff skills in place. 🌿

### You can do it!

I've given you a very brief introduction to thin client technology. You still have a lot of work to do before you're fully "up to speed." But, as a thin client convert, I encourage you to explore further to see if your library might also benefit by going "PAC to the future."

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# THIN CLIENTS IN RURAL LIBRARIES

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## Advantages

- 1) Centralized management lowers PAC support staff requirements.
- 2) Remote management allows leveraging of staff skills across broader geographic areas.
- 3) Policy-based rules enforcement reduces the need for additional security layers, such as CenturionGuard, Fortres Grand Fortres 101, and Faronics WinSelect.
- 4) Shared configurations across thin clients provide “look-and-feel” consistency and ease-of-use for patrons.
- 5) Shared configurations across thin clients also allow the rapid rollout of new applications and features to all PACs.
- 6) The smaller stature and lower power draw of thin clients reduces both space and power consumption.

## Disadvantages

- 1) If a thin client server goes down, all thin clients attached to the server become unusable.
- 2) Video performance of browser plugins such as QuickTime and Flash is not as good on thin clients as on traditional PCs. The implementation of thin clients may require staff to learn new skills.
- 3) The economies-of-scale inherent in thin clients benefit rural consortia and multi-library systems more than stand-alone libraries.
- 4) For patrons to use floppy diskettes or CD-ROMs on thin clients, the library must purchase and provide external, USB-based drives.

